UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,149	09/29/2005	Herbert Boerner	DE 020219	2960

24737 7590 01/02/2008

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER	
BREVAL, ELMITO	
ART UNIT	**PAPER NUMBER**
2879	
MAIL DATE	**DELIVERY MODE**
01/02/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

714

Office Action Summary	Application No.	Applicant(s)	
	10/530,149	BOERNER ET AL.	
	Examiner	Art Unit	
	Elmito Breval	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendment filed on 10/18/2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The amendment filed on, 10/18/2007 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Yazawa et al.,(hereinafter "Yazawa")(US. Patent: 5,804,918).

Regarding claim 1, Yazawa discloses (in at least fig. 1) an electroluminescent display comprising a common substrate (1) and an array of electroluminescent devices (10) disposed on the common substrate, wherein each of said electroluminescent devices comprise an electroluminescent layer (6) which is sandwiched between a first and second electrode (4, 8), color converting material which is capable of changing light emitted by the electroluminescent layer into light having a longer wavelength (col. 4, lines 63) and a stack of 2n+1 transparent dielectric layer wherein n=0, 1, 2, 3, ..., (fig. 1) said transparent dielectric layers having a high refractive index of n>1.7 or a low refractive index of n<= 1.7 (example 4) said transparent dielectric layers having a high refractive index n being arranged in alternating manner with said transparent dielectric layers having a low refractive index n, said stack on 2n + 1 transparent dielectric layers

being arranged adjacent to one of the electrodes and a dielectric transparent layer having a high refractive index n adjoining said electrode (fig. 8, example 4).

Regarding claim 2, Yazawa discloses the electroluminescent display as claimed in claim 1, wherein said transparent dielectric layers having a refractive index n> 1.7 is selected from the group consisting of TiO2, ZnS and SnO2 (fig. 8, example 4).

Regarding claim 3, Yazawa further discloses the electroluminescent display as claimed in claim 1, wherein said transparent dielectric layers having a refractive index n<= 1.7 is selected from the group consisting of SiO2, MgF2, and alumino silicates (col. 4, line 3).

Regarding claim 5, Yazawa discloses the electroluminescent display as claimed in claim 1, wherein said electroluminescent device is an active matrix device having a pixilated first electrode (fig. 2).

Regarding claim 6, Yazawa discloses the electroluminescent display as claimed in claim 1, wherein a capping layer is placed adjacent to the second electrode and wherein the color converter material is embedded in or placed on top of the capping layer (fig. 2).

Regarding claim 8, Yazawa discloses an electroluminescent device comprising: an electroluminescent layer (6) which is sandwiched between a first and a second electrode (4, 8), a color converting material which is capable of changing light emitted by the electroluminescent layer into light having a longer wavelength (col. 3, line 63) and a stack of 2n +1 transparent dielectric layers wherein n=0, 1, 2, 3,... (fig. 8, example 4) said transparent dielectric layers having a high refractive index of n>1. 7 or a low

refractive index of n<= 1.7, (example 4), said transparent dielectric layers having a high refractive index n being arranged in alternating manner with said transparent dielectric layers having a low refractive index n (example 4) said stack of 2n + 1 transparent dielectric layers being arranged adjacent to one of the electrodes and a dielectric transparent layer having a high refractive index n adjoining said electrode (fig. 8).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yazawa et al.,(hereinafter "Yazawa")(US. Patent: 5,804,918) in view of Shimizu (US. Patent: 5003221).

Regarding claim 7,Yazawa discloses the electroluminescent display as claimed in one of the claims 1 to 6, but fail to explicitly disclose the color converting material is selected from the group consisting of (Ba, Sr)2SiO4:Eu, SrGa2S4:Eu, CaS:Ce, Ba2ZnS3:Ce, K, Lumogen yellow ED206, (Sr, Ca)2SiO4:Eu, (Y, Gd)3(Al,Ga)5O12:Ce, Y3Al5O12:Ce, Lumogen Forange 240, SrGa2S4:Pb, Sr2Si5N8:Eu, SrS:Eu, Lumogen F red 300, Ba2Si5N8:Eu, Ca2Si5N8:Eu CaSiN2:Eu and CaS:Eu.

However, Shimizu in the same field of endeavor teaches an electroluminescent device wherein the color converting material is selected from the group consisting of

(Ba, Sr)2SiO4:Eu, SrGa2S4:Eu, CaS:Ce, Ba2ZnS3:Ce, K, Lumogen yellow ED206, (Sr, Ca)2SiO4:Eu, (Y, Gd)3(Al,Ga)5O12:Ce, Y3Al5O12:Ce, Lumogen Forange 240, SrGa2S4:Pb, Sr2Si5N8:Eu, SrS:Eu, Lumogen F red 300, Ba2Si5N8:Eu, Ca2Si5N8:Eu CaSiN2:Eu and CaS:Eu (col. 15, lines 4-5) in order to have good color brightness.

Given the teaching of Shimizu, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the color converting material as taught by Shimizu into the electroluminescent device of Yazawa in order to have good color brightness.

Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Yazawa et al.,(hereinafter "Yazawa")(US. Patent: 5,804,918) as applied to claim 1 above, and further in view of Leising et al., (hereinafter "Leising")(US. Patent: 6,117,529).

Regarding claim 4, Yazawa discloses the electroluminescent display as claimed in claim 1, wherein said transparent dielectric layers having a high refractive index n is ZnS (fig. 8, example 4), but fails to expressly disclose the transparent dielectric layers having a low refractive index n is MgF2.

However, Leising teaches an electroluminescent device wherein the transparent dielectric layers having a low refractive index n is MgF2 (col. 5, line 64) in order to improve luminance efficiency.

Given the teaching of Leising, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the low refractive index material as taught by Leising into the electroluminescent device of Yazawa in order to improve luminance efficiency of the device.

Claims 9- 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yazawa et al.,(hereinafter "Yazawa")(US. Patent: 5,804,918) as applied to claim 1 and 8 above, and further in view of Tang et al., (hereinafter "Tang")(US. Patent: 5,294,870).

Regarding claims 9 and 12, Yazawa discloses the electroluminescent of claim 1 and 8, but fails to explicitly disclose the color converting material is configured to convert blue light to at least one of red and green light.

However, Tang in same field of endeavor teaches an electroluminescent device wherein the color converting material is configured to convert blue light to at least one of red and green light (col. 8, lines 14-15) in order to have good luminance efficiency and to improve image contract.

Given the teaching of Tang, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the color converting material as taught by Tang into the electroluminescent device of Yazawa in order to have good luminance efficiency and to improve image contrast.

Regarding claim 10 and 13, Yazawa discloses the electroluminescent display of claim 1 and 12, but fails to disclose the blue light passes through the electroluminescent device substantially without loss.

However, Tang teaches an electroluminescent device wherein the blue light passes through the electroluminescent device substantially without loss (col. 8, lines 54-56; col. 9, lines 5-6) in order to have good luminance efficiency.

Given the teaching of Tang, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the blue light material as taught by Tang into the device of Yazawa in order to have good luminance efficiency.

Regarding claim 11 and 14, Yazawa discloses the electroluminescent display of claim 1 and 8, but fails to expressly disclose the color converting material is configured to convert blue light to red light for a first sub-pixel, and to convert the blue light to green light for a second sub-pixel, and wherein the blue light passes through the electroluminescent device substantially without loss for a third sub-pixel.

However, Tang in the same field of endeavor teaches an electroluminescent display device wherein the color converting material is configured to convert blue light to red light for a first sub-pixel, and to convert the blue light to green light for a second sub-pixel, and wherein the blue light passes through the electroluminescent device substantially without loss for a third sub-pixel (col. 8, lines 41-46) in order to improve luminance efficiency.

Given the teaching of Tang, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the color converting material as taught by Tang into the device of Yazawa in order to improve luminance efficiency.

Response to Arguments

Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground (s) of rejection.

The 102 and 103 rejections set forth in the last office action have been withdrawn.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tokailin et al. (US. Patent: 5126214).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elmito Breval whose telephone number is 571-270-3099. The examiner can normally be reached on M-F (8:30 AM-5:00 Pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

December 19, 2007
Examiner
Elmito Breval

MARICELI SANTIAGO
PRIMARY EXAMINER